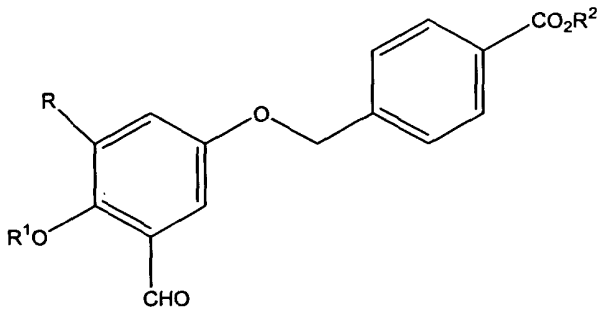
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

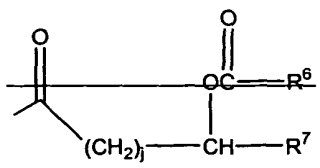
1.(currently amended) A process for preparing a compound[,] having the formula :



wherein[,] R is hydrogen or –C(O)H; R^1 is ~~a member selected from the group consisting of~~ hydrogen~~, a substituted C_{1-20} alkyl group, an unsubstituted C_{1-20} alkyl group, a saccharyl group, and a group represented by the formula $-C(O)-[C(R^3)(R^4)]_n-COOH$,~~

~~wherein each R^3 and R^4 independently is a member selected from the group consisting of hydrogen and a substituted C_{1-10} alkyl group, an unsubstituted C_{1-10} alkyl group; and n is a number from 1 to 5~~; and R^2 is a member selected from the group consisting of hydrogen, ~~a~~ substituted C_{1-20} alkyl groups, ~~an~~ and unsubstituted C_{1-20} alkyl groups, ~~and a group represented by the formula $-(CH_2)_m CH(OH)(CH_2)_p OR^5$,~~

~~wherein m and p are independently 1 or 2, and R^5 is a substituted C_{2-20} alkyl group, or an unsubstituted C_{2-20} alkyl group, or a group represented by the formula~~



~~wherein j is 1-5, and R^6 and R^7 are independently selected from the group consisting of hydrogen, a substituted C_{1-20} alkyl group, and an unsubstituted C_{1-20} alkyl group;~~

~~or a pharmacologically acceptable salt thereof~~ ,comprising the steps of:

(a) monobenzylating hydroquinone; and

(b) conducting an ortho-formylation of the product of step (a).

2.(currently amended)) The ~~compound~~ process of claim 1 wherein R^1 ~~the saccharyl group~~ is a mono- or disaccharide.

3.(currently amended) The ~~compound~~ process of claim 1 wherein ~~the saccharyl group~~ R^1 is a glucuronic acid group.

4.(currently amended) The ~~compound~~ process of claim 1 wherein R, R^1, and R^2 are all hydrogen[s].

5.(currently amended) The ~~compound~~ process of claim 1 wherein R is hydrogen; R^1 is a saccharyl group, wherein the saccharyl group is a glucuronic acid group; and R^2 is hydrogen.

6.(currently amended) The ~~compound~~ process of claim 5 wherein the glucuronic acid group is a β-D-glucuronic acid group.

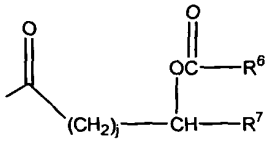
7.(canceled) The compound of claim 1 wherein R is hydrogen; R^1 is represented by the formula $-C(O)-[C(R^3)(R^4)]_n-COOH$ wherein R^3 and R^4 are hydrogens and n is 2; and R^2 is hydrogen.

8.(canceled) The compound of claim 1 wherein R is hydrogen; R^1 is a saccharyl group, wherein the saccharyl group is a glucuronic acid group; and R^2 is $(CH_2)_mCH(OH)(CH_2)_mOR^5$, wherein m is 1, and R^5 is a substituted C_{2-20} acyl group, or an unsubstituted C_{2-20} acyl group.

9.(canceled) The compound of claim 8 wherein $(CH_2)_mCH(OH)(CH_2)_mOR^5$ is a 1-*O*-acyl-*sn*-glyceryl group.

10.(canceled) The compound of claim 9 wherein the acyl group is a member selected from the group consisting of an acetyl group, an octanoyl group, and a tetradecanoyl group.

11.(canceled) The compound of claim 1 wherein R is hydrogen; R^1 is a saccharyl group, wherein the saccharyl group is a glucuronic acid group; and R^2 is a group represented by the formula



wherein j is 1; R^6 is a substituted C_{1-20} alkyl group, or an unsubstituted C_{1-20} alkyl group; and R^7 is a substituted C_{1-20} alkyl group, or an unsubstituted C_{1-20} alkyl group.

12.(canceled) The compound of claim 11 wherein R^7 is a substituted C_{11} alkyl group, or an unsubstituted C_{11} alkyl group.

13.(canceled) The compound of claim 1, wherein R^1 is an alkyl group having the formula $-(CH_2)_XCOOR^8$, wherein R^8 is hydrogen, a substituted C_{1-20} alkyl group, or an unsubstituted C_{1-20} alkyl group, wherein X is an integer from 1 to 7.

14.(canceled) The compound of claim 13, wherein X is an integer from 2 to 4.

15.(canceled) A liposome vesicle comprising the compound of claim 1.

16.(canceled) A compound comprising an antigen covalently linked to the compound of claim 1.

17.(canceled) A vaccine composition comprising the compound of claim 16.

18.(canceled) A vaccine composition comprising an antigen and the compound of claim 1.

19.(canceled) The vaccine composition of claim 18 wherein the antigen is a bacterial antigen.

20.(canceled) The vaccine composition of claim 18 wherein the antigen is a viral antigen.

21.(canceled) The vaccine composition of claim 18 wherein the antigen is a tumor associated antigen.

22.(canceled) The vaccine composition of claim 18 wherein the antigen is a self-antigen.

23.(canceled) An adjuvant composition for potentiating the immunogenicity of an antigen, comprising a suspension of water or an aqueous solution, wherein said suspension or solution comprises the compound of claim 1.

24.(canceled) The adjuvant composition of claim 23 wherein the suspension is an oil-in-water emulsion.

25.(canceled) The adjuvant composition of claim 21 wherein the suspension is a water-in-oil emulsion.

26.(canceled) The adjuvant composition of claim 23 wherein the suspension is a micellar dispersion comprising at least one surfactant.

27.(canceled) The adjuvant composition of claim 26 wherein the surfactant comprises dipalmitoyl phosphatidylcholine (DPPC).

28.(canceled) A method for inducing or enhancing immunogenicity of an antigen in a mammal, comprising administering to said mammal a vaccine composition comprising the antigen and a vaccine adjuvant composition comprising an effective immunopotentiatory amount of the compound of claim 1.

29.(canceled) The method of claim 28 wherein said vaccine composition is administered orally, topically, epicutaneously, intramuscularly, intradermally, subcutaneously, intranasally, intravaginally, sublingually, or via inhalation.

30.(canceled) A method for treating or preventing a disease in a mammal comprising administering to said mammal a vaccine composition comprising an antigen and an effective immunopotentiatory amount of the compound of claim 1.

31.(canceled) The method of claim 30 wherein the mammal is a human being.

32.(canceled) The method of claim 30 wherein the disease is cancer, an autoimmune disease, an allergy, or an infectious disease.

33.(canceled) The method of claim 32 wherein the infectious disease is a bacterial or viral infection.

34.(canceled) The method of claim 30 wherein the effective amount ranges from about 0.0001 to about 1.0 mg/kg of body weight.

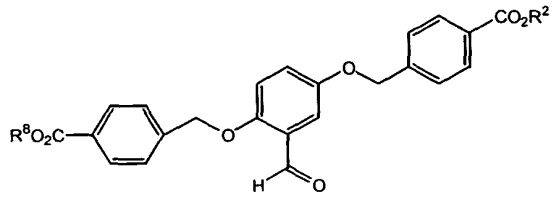
35.(canceled) The method of claim 34 wherein the effective amount ranges from about 0.001 to about 0.1 mg/kg of body weight.

36.(canceled) The method of claim 30 wherein the compound of claim 1 is administered once weekly to once monthly for a period of up to about 6 months.

37.(canceled) The method of claim 36 wherein the effective is administered once monthly for a period of about 2-3 months.

38.(canceled) A method for preparing an adjuvant or immunoeffector, said method comprising:

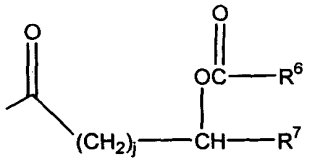
contacting a first compound with the formula:



wherein R^2 and R^8 are independently selected from the group consisting of hydrogen, a substituted $C_{1\text{-}20}$ alkyl group, an unsubstituted $C_{1\text{-}20}$ alkyl group, and a group having the formula –

$(CH_2)_mCH(OH)(CH_2)_pOR^5$

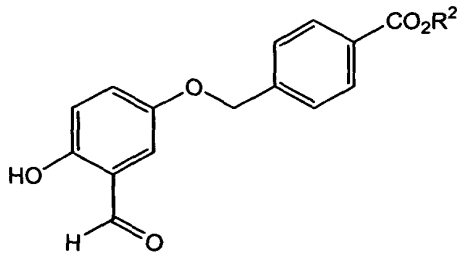
wherein m and p are independently 1 or 2, and R^5 is a substituted $C_{2\text{-}20}$ acyl group, an unsubstituted $C_{2\text{-}20}$ acyl group, or a group having the formula:



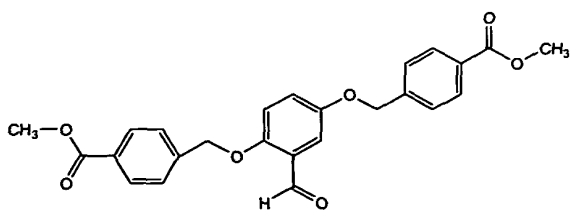
wherein j is an integer from 1 to 5, and R^6 and R^7 are independently selected from the group consisting of hydrogen, a substituted $C_{1\text{-}20}$ alkyl group, and an unsubstituted $C_{1\text{-}20}$ alkyl group,

with a second compound selected from the group comprising of: MX_n, wherein M is selected from the group consisting of Al^{3+}, As^{3+}, B^{3+}, Fe^{2+}, Fe^{3+}, Ga^{3+}, Mg^{2+}, Sb^{3+}, Sb^{5+}, Sn^{2+}, Sn^{4+}, Ti^{2+}, Ti^{3+}, Ti^{4+},and Zn^{2+}, wherein n is an integer from 2 to 5, $MgX_2\text{-}OEt_2$, $BX_3 \cdot SMe_2$, Et_2AlCl, $EtAlCl_2$, monoalkyl boronhalides, dialkyl boronhalides, and monoaryl boronhalides, diaryl boronhalides, wherein X is selected from the group consisting of: Cl, I, F, and Br,

under conditions sufficient to form a third compound or a pharmacologically acceptable salt thereof with the formula of:



39.(canceled) The method of claim 38, wherein said first compound is:



40.(canceled) The method of claim 38, wherein R^2 is methyl.

41.(canceled) The method of claim 38, wherein R^2 is hydrogen.

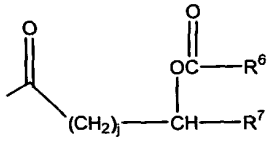
42.(canceled) The method of claim 38, wherein the second compound is selected from the group consisting of: $AlCl_3$, AlI_3, AlF_3, $AlBr_3$, Et_2AlCl, $EtAlCl_2$, $AsCl_3$, AsI_3, AsF_3, $AsBr_3$, BCl_3, BBr_3, BI_3, BF_3, $BCl_3{\cdot}SMe_2$, $BI_3{\cdot}SMe_2$, $BF_3{\cdot}SMe_2$, $BBr_3{\cdot}SMe_2$, $FeCl_3$, $FeBr_3$, FeI_3, FeF_3, $FeCl_2$, $FeBr_2$, FeI_2, FeF_2, $GaCl_3$, GaI_3, GaF_3, $GaBr_3$, $MgCl_2$, MgI_2, MgF_2, $MgBr_2$, $MgCl_2$-OEt_2, MgI_2-OEt_2 MgF_2-OEt_2 $MgBr_2$-OEt_2, $SbCl_3$, SbI_3, SbF_3, $SbBr_3$, $SbCl_5$, SbI_5, SbF_5, $SbBr_5$, $SnCl_2$, SnI_2, SnF_2, $SnBr_2$, $SnCl_4$, SnI_4, SnF_4, $SnBr_4$, $TiBr_4$, $TiCl_2$, $TiCl_3$, $TiCl_4$, TiF_3, TiF_4, TiI_4, $ZnCl_2$, ZnI_2, ZnF_2, and $ZnBr_2$.

43.(canceled) The method of claim 38 wherein R^2 is $(CH_2)_mCH(OH)(CH_2)_mOR^5$, wherein m is 1, and R^5 is a substituted $C_{2\text{-}20}$ acyl group, or an unsubstituted $C_{2\text{-}20}$ acyl group.

44.(canceled) The method of claim 43, wherein $(CH_2)_mCH(OH)(CH_2)_mOR^5$ is a 1-*O*-acyl-*sn*-glyceryl group.

45.(canceled) The method of claim 44, wherein the acyl group is a member selected from the group consisting of acetyl, octanoyl, and tetradecanoyl groups.

46.(canceled) The method of claim 38, wherein R^2 is a group represented by the formula



wherein j is 1; R^6 is a substituted $C_{1\text{-}20}$ alkyl group, or an unsubstituted $C_{1\text{-}20}$ alkyl group and R^7 is a substituted $C_{1\text{-}20}$ alkyl group, or an unsubstituted $C_{1\text{-}20}$ alkyl group.

47.(canceled) The method of claim 46 wherein R^7 is a substituted C_{11} alkyl group, or an unsubstituted C_{11} alkyl group.

48.(new) The process of claim 1 in which the hydroquinone is benzylated by reaction with a 4-bromomethyl benzoate ester.

49.(new) The process of claim 48 in which R^2 is hydrogen.

50.(new) The process of claim 49 in which R and R^1 are hydrogen.

51.(new) The process of claim 1 in which R^2 is an unsubstituted alkyl group.

52.(new) The process of claim 51 in which R^2 is t-butyl.

53.(new) The process of claim 52 in which R and R^1 are hydrogen.

54.(new) The process of claim 51 in which R^2 is methyl.

55.(new) The process of claim 54 in which R and R^1 are hydrogen.